

REMARKS

Claims 1, 3 - 6, and 8 - 11 are now in the case. Of these, Claims 1 and 11 are independent claims.

Applicant notes with appreciation the indication by the Examiner that Claims 7 and 8 were directed to allowable subject matter. Claim 7 has been rewritten in independent form as Claim 11, incorporating the limitations of base Claim 1 as originally filed and formerly intervening Claims 2, 3 and 4. Claim 8 now depends from Claim 11.

Claim 1 has been substantially amended to recite applicant's invention with more particularity. The claim now recites that the swash plate has an outer swash plate portion surrounding the swash plate drive shaft and generally freely rotatably moveable about and relative to the swash plate drive shaft and relative to the housing.

It is further recited that the swash plate comprises a bearing assembly and that the outer swash plate portion comprises an outer race of the bearing assembly, the outer race having a contact surface.

Amended Claim 1 now recites that the plurality of spaced reciprocating members mounted for reciprocatable axial movement relative to the housing frictionally engage the contact surface of the outer race but do not prevent rotation of the outer race about and relative to the swash plate drive shaft and

relative to the housing. The claim also states that the locations of contact between the contact surface and the reciprocating members change when the outer race rotates about the swash plate drive shaft and relative to the housing to reduce wear between the reciprocating members and the outer race.

The structure now set forth in Claim 1 is not taught or suggested by the art of record, including Gardner and Arai, whether taken alone or in combination. Gardner discloses an arrangement wherein the outer race of a ball bearing assembly in a fluid driven unit is attached to the tops of reciprocating pistons by flexible cables 52. Thus, the outer race of the Gardner assembly cannot rotate about the crank shaft 14 and relative to the housing 12 of Gardner. The outer race is fixed against rotation. In other words, the Gardner approach is merely a variation of the great many prior art swash plate designs which rely on a connecting means or linkage between the swash plate and the pistons.

In applicant's claimed invention, on the other hand, no such connection is utilized. The advantages to this are a simplified construction that is easy to assemble, fewer parts that are subject to wear or breakage making a more reliable assembly, and less cost.

Clearly Gardner's approach of utilizing flexible interconnector cables is complex and highly prone to wear and

tear. Furthermore, the reliability of such a system is highly questionable since wear or stretching of cables is likely to occur. The Gardner apparatus cannot operate as a fluid pump. In Gardner flexible cables transmit the load. Whereas a cable can carry a load in tension (as a motor) it cannot support a load in compression (as a compressor) and will collapse upon itself. Simply reversing the attachment points of the cable so that it can then be made to drive the piston in tension is not enough. In a compressor there is a need to both push the piston as in the act of compression and pull the piston to draw the fluid into the cylinder. A flexible means such as a cable is limited to tension only.

Arai proposes a design that works as a motor or a pump, yet does not embody the cable linkage as disclosed by Gardner. The operation of the Arai device clearly is incompatible with the arrangement of Gardner which embodies the cable linkage. Thus, the pistons of Arai cannot be considered interchangeable with the pistons of Gardner. The attempted combination of Gardner and Arai is improper and clearly a failed attempt at hindsight construction of applicant's claimed invention.

Arai does not teach the use of a rotatable swash plate outer race rotatably moveable about and relative to a swash plate drive shaft and relative to the apparatus housing.

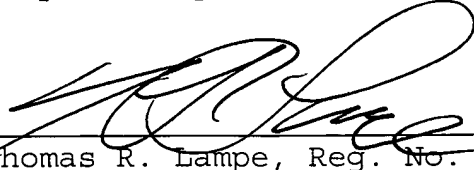
Claims 3 - 6, 9 and 10 depend either mediately or immediately from Claim 1 and thus incorporate by reference the structural elements and cooperative relationships therebetween set forth in that parent claim. There is no teaching or suggestion whatsoever by Gardner and Arai, whether taken alone or in combination, of the features of these dependent claims incorporated in with the novel overall combination set forth in Claim 1, as amended.

The prior art cited but not applied has been studied and is not considered relevant to applicant's invention, as disclosed and claimed.

In summary, it is believed that all claims now in the case, Claims 1, 3 - 6 and 8 - 11, are clearly allowable. Allowance of this application is believed to be in order and such action is earnestly solicited.

Respectfully submitted,

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